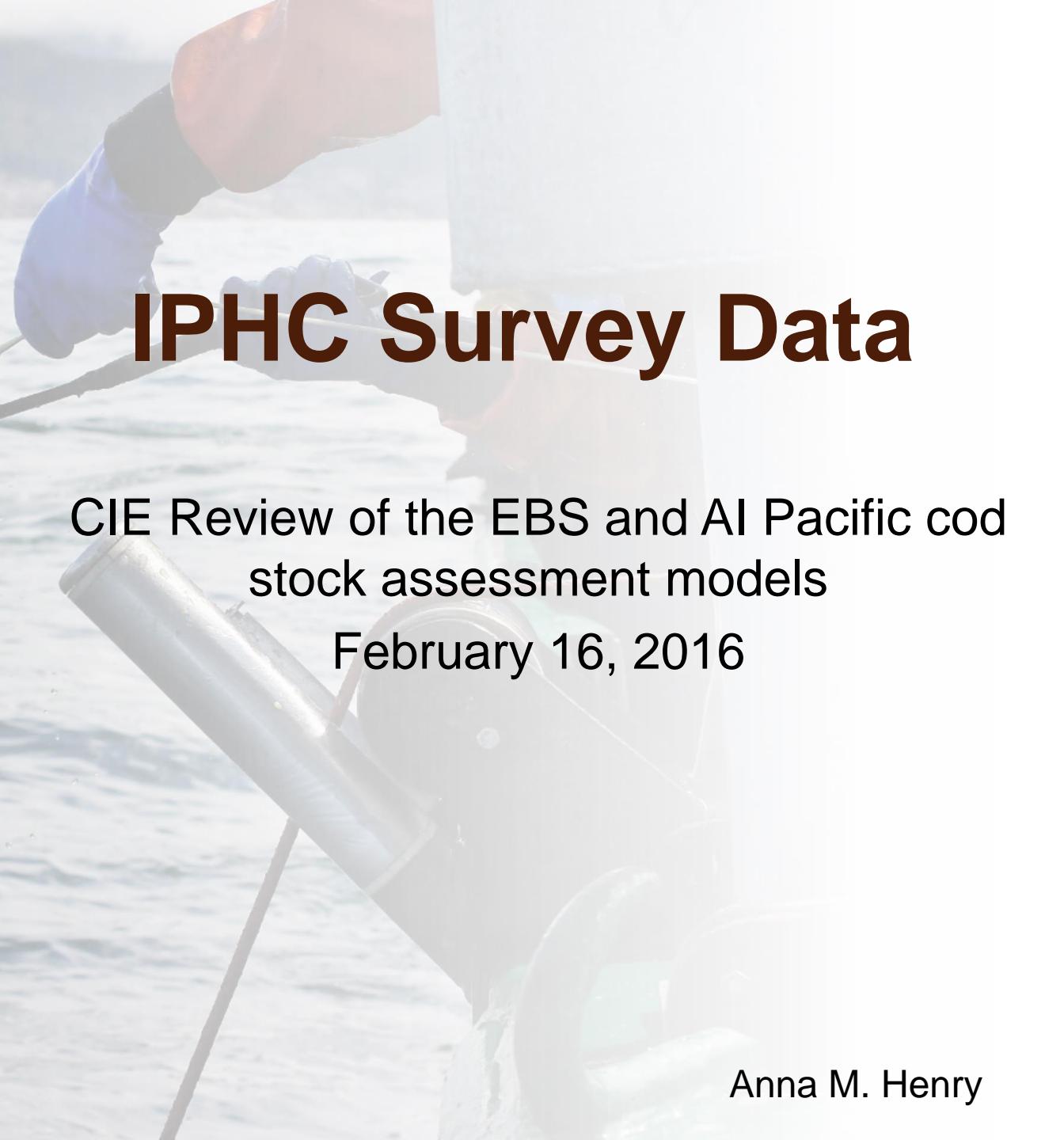


A photograph of a fish, likely a cod, being pulled from the water by a fishing line attached to a hook. The fish is dark on top and light on bottom, with its mouth open and a hook visible. The background shows a body of water and distant hills.

IPHC Survey Data

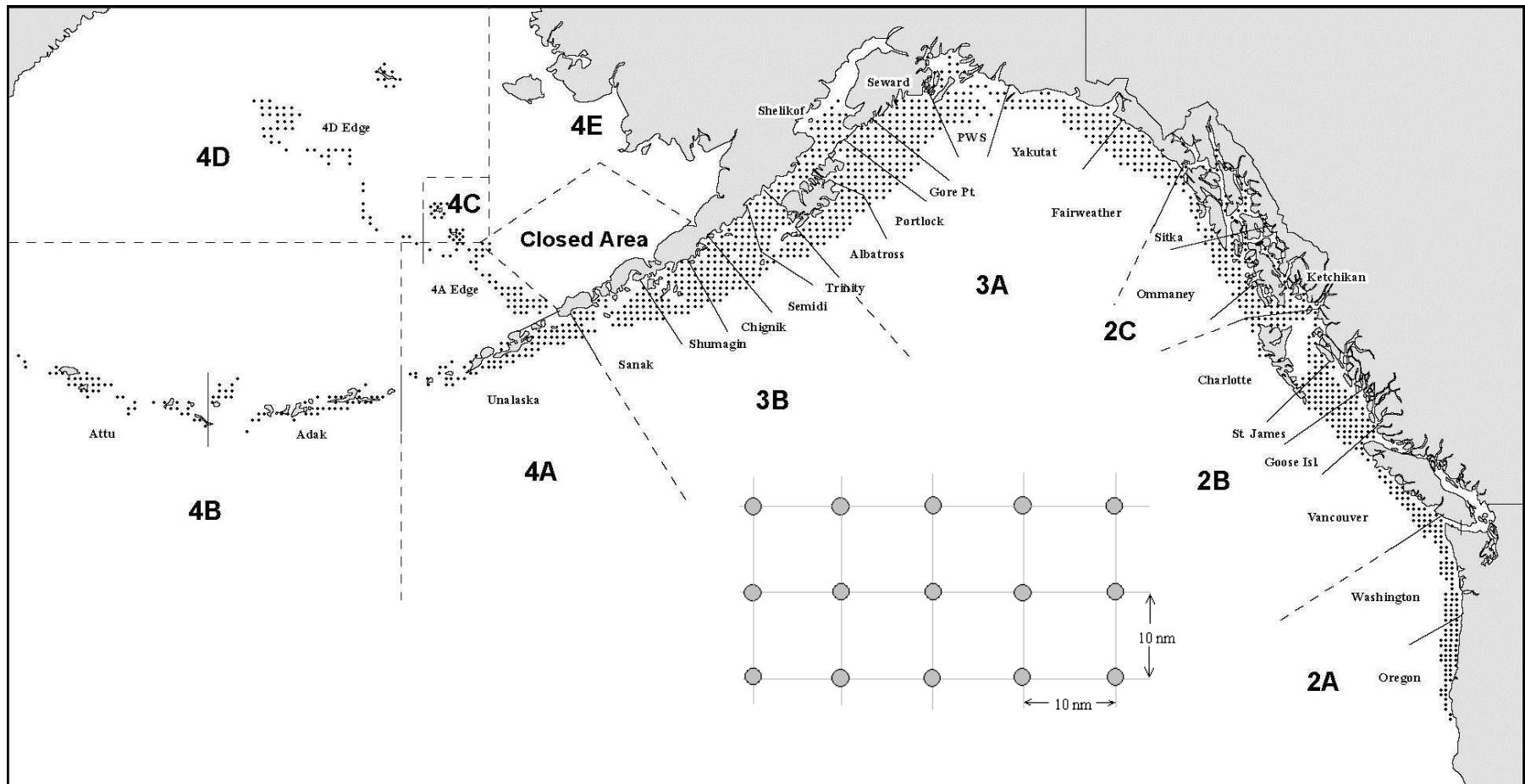
CIE Review of the EBS and AI Pacific cod stock assessment models

February 16, 2016

A photograph of a person wearing a white protective suit and a mask, holding a clear plastic cylindrical container. The person is standing in a body of water, and their reflection is visible in the water. The background is bright and overexposed.

Anna M. Henry

Survey design



Standardization

- Fixed station positions
- Gear
- Bait
- Soak duration and time of day



J. Cramer



Primary objective

- Standardized, fishery independent data for Pacific halibut stock assessment
 - CPUE, sex specific length-at-age, age composition
 - Data on juvenile halibut
 - Halibut distribution and abundance trends (changes in sex, length, maturity and age over the grounds)



S. Parker



Secondary objectives

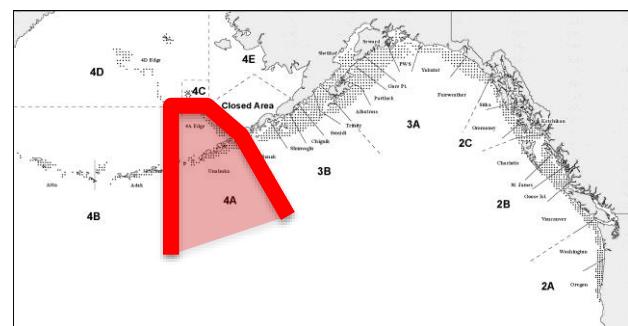
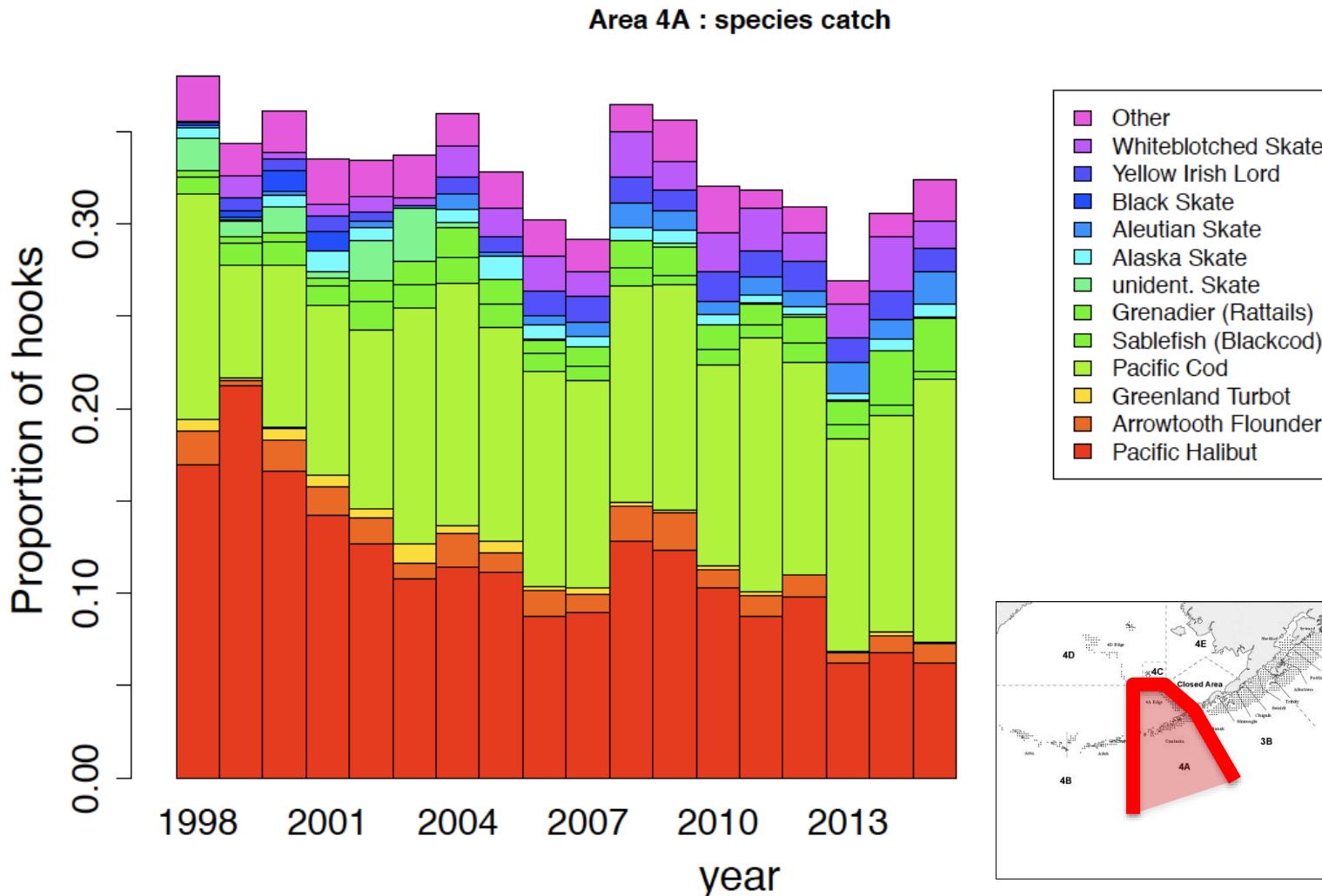
- Provide data on bycatch
- Platform for specialized data collection projects



L. Boitpr

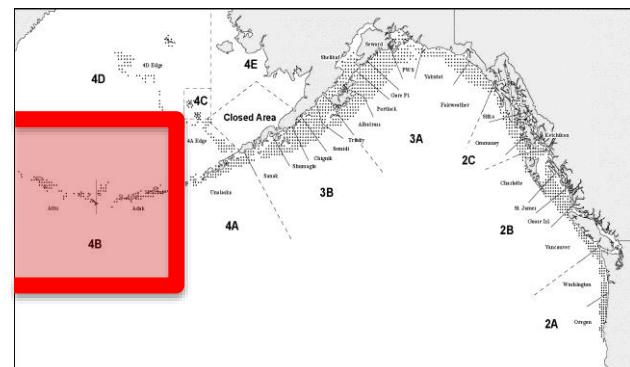
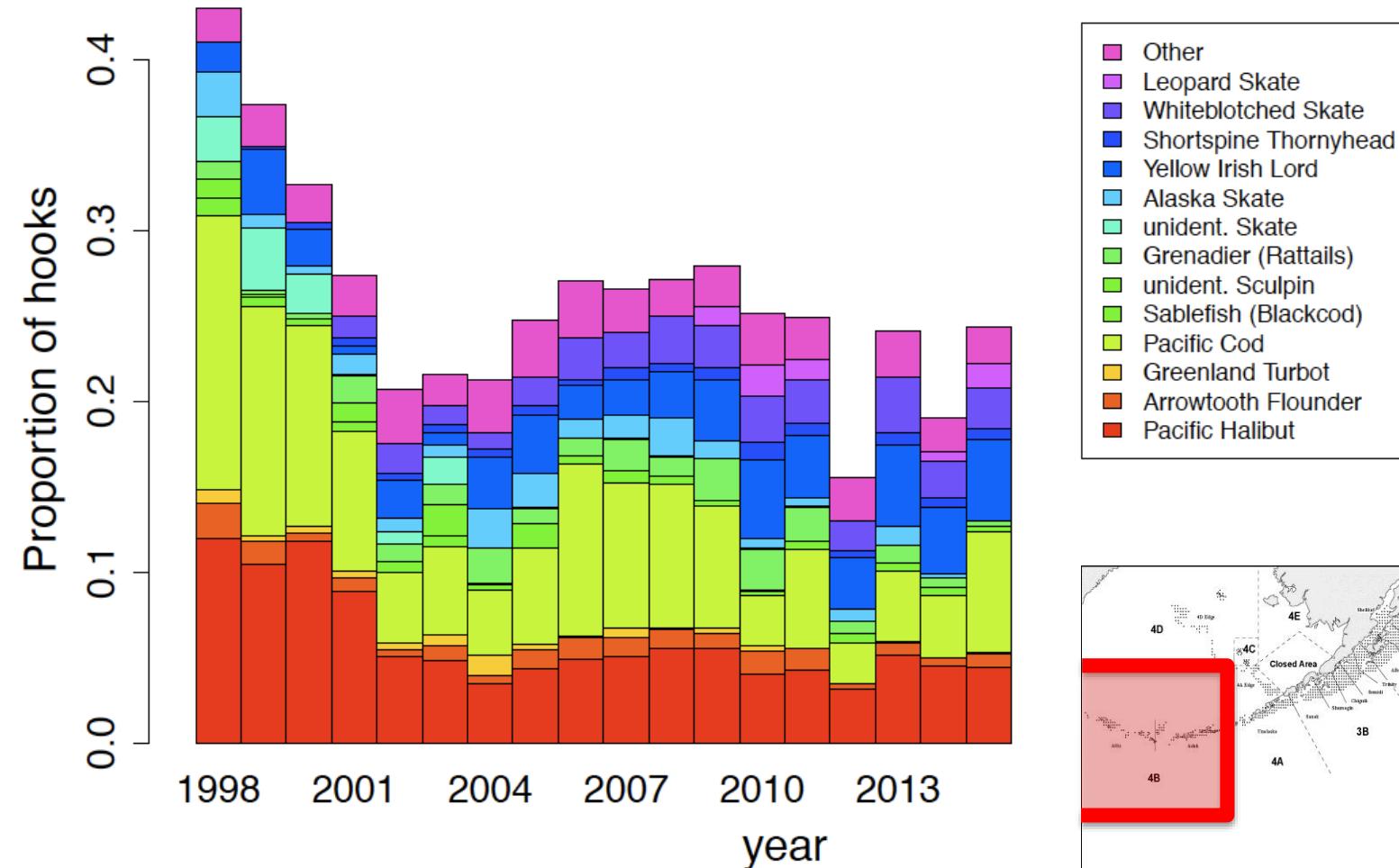


20 hook counts



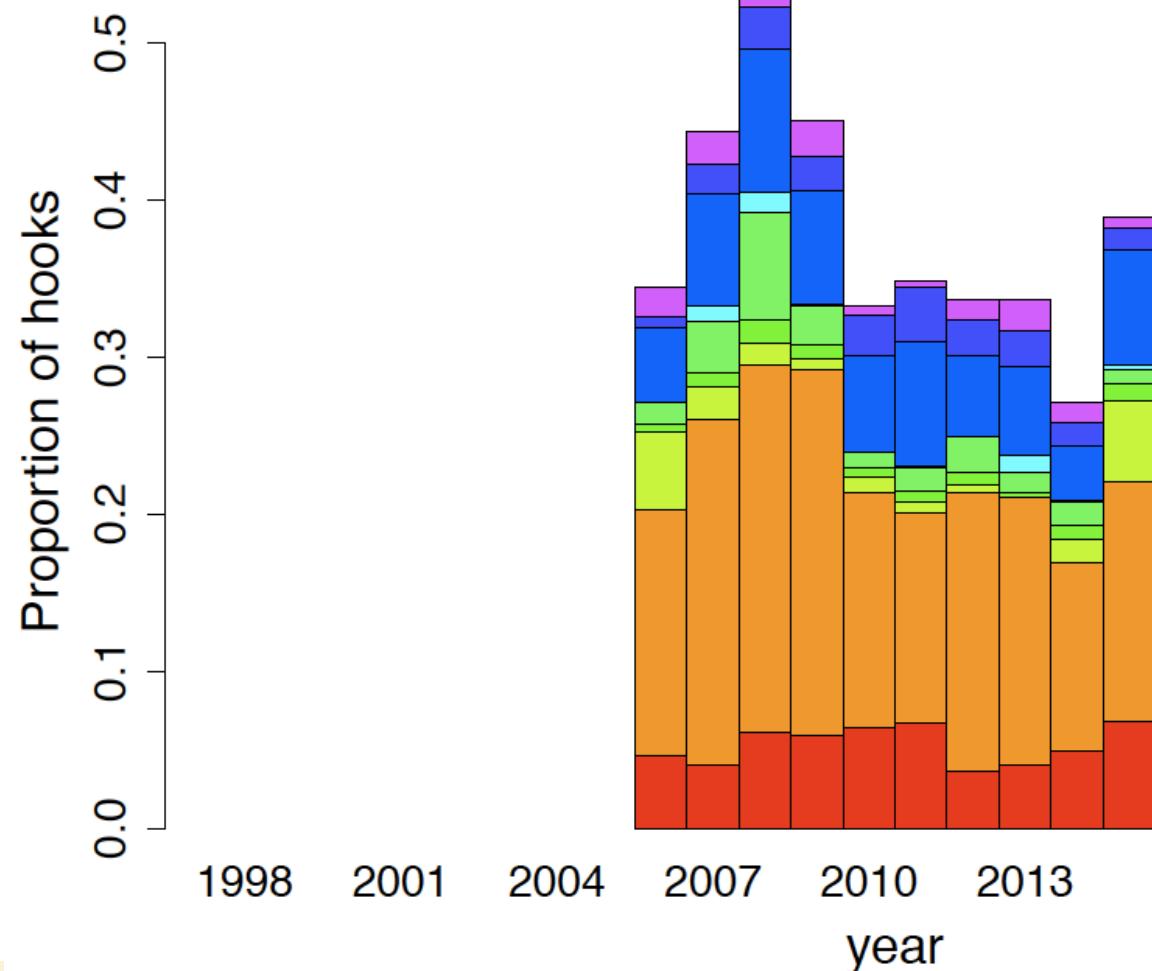
20 hook counts

Area 4B : species catch

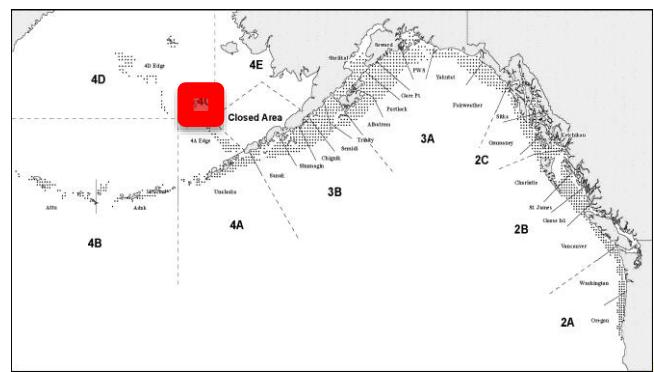


20 hook counts

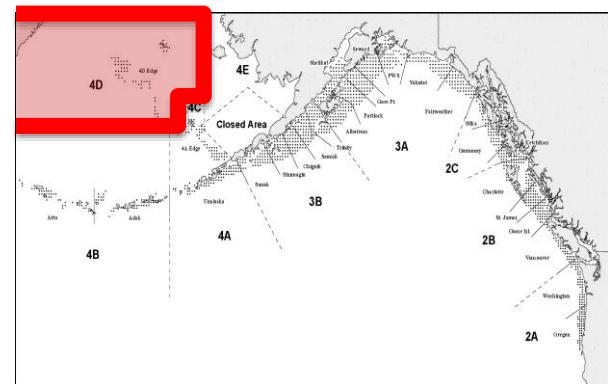
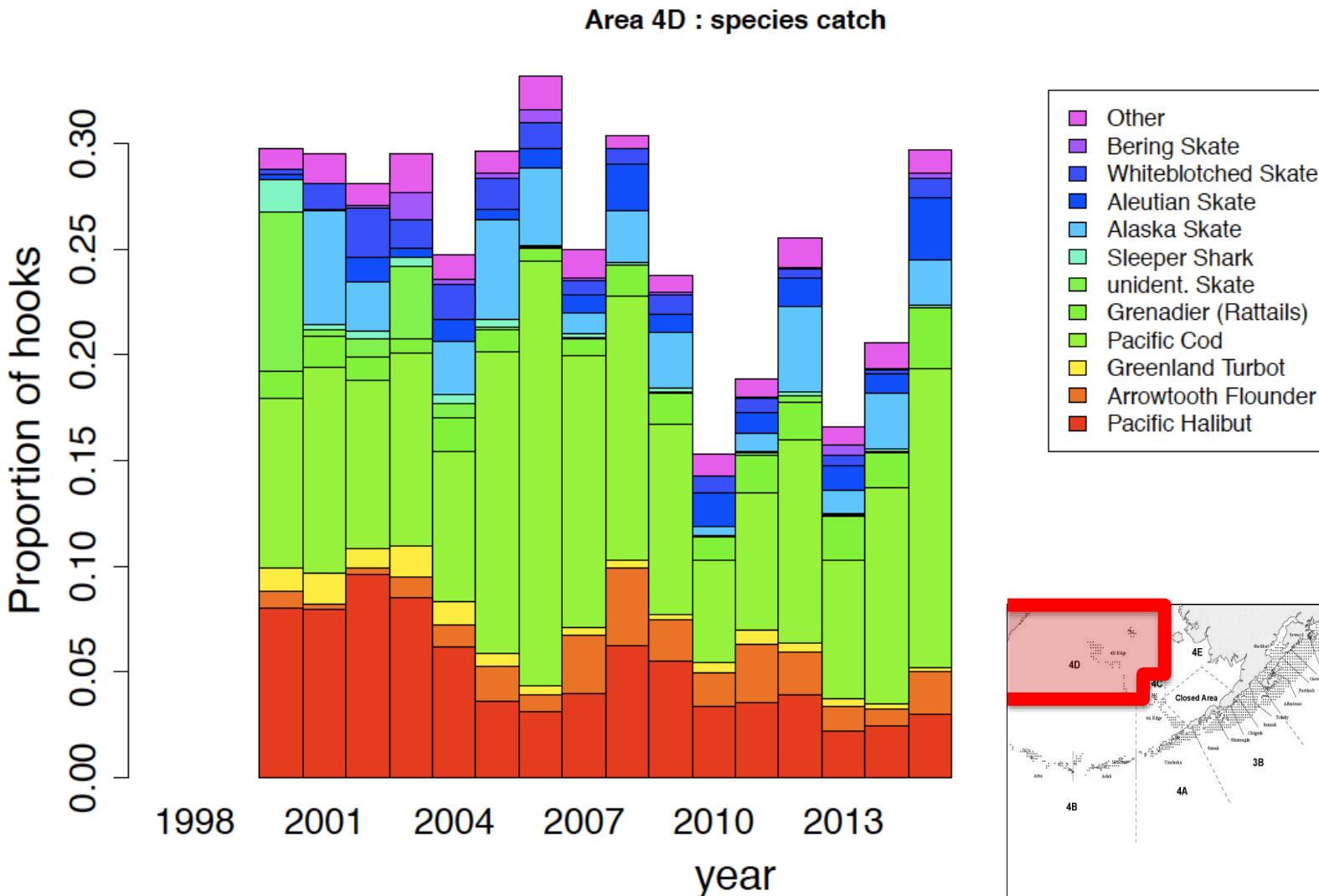
Area 4C : species catch



- Other
- Great Sculpin
- Yellow Irish Lord
- Aleutian Skate
- Alaska Skate
- Sea Anemone
- unident. Starfish
- Pacific Cod
- Pacific Halibut

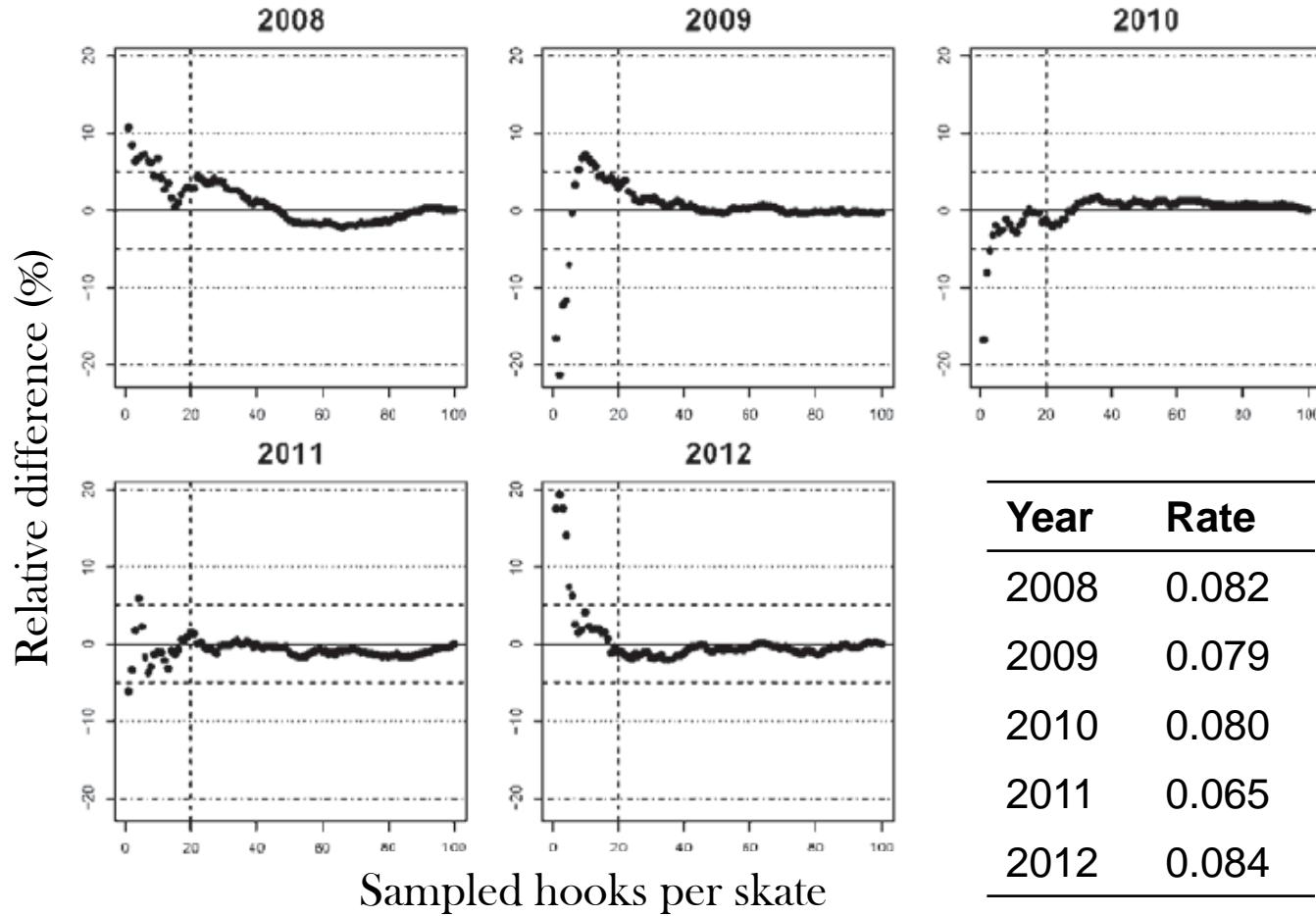


20 hook counts



20 hook counts

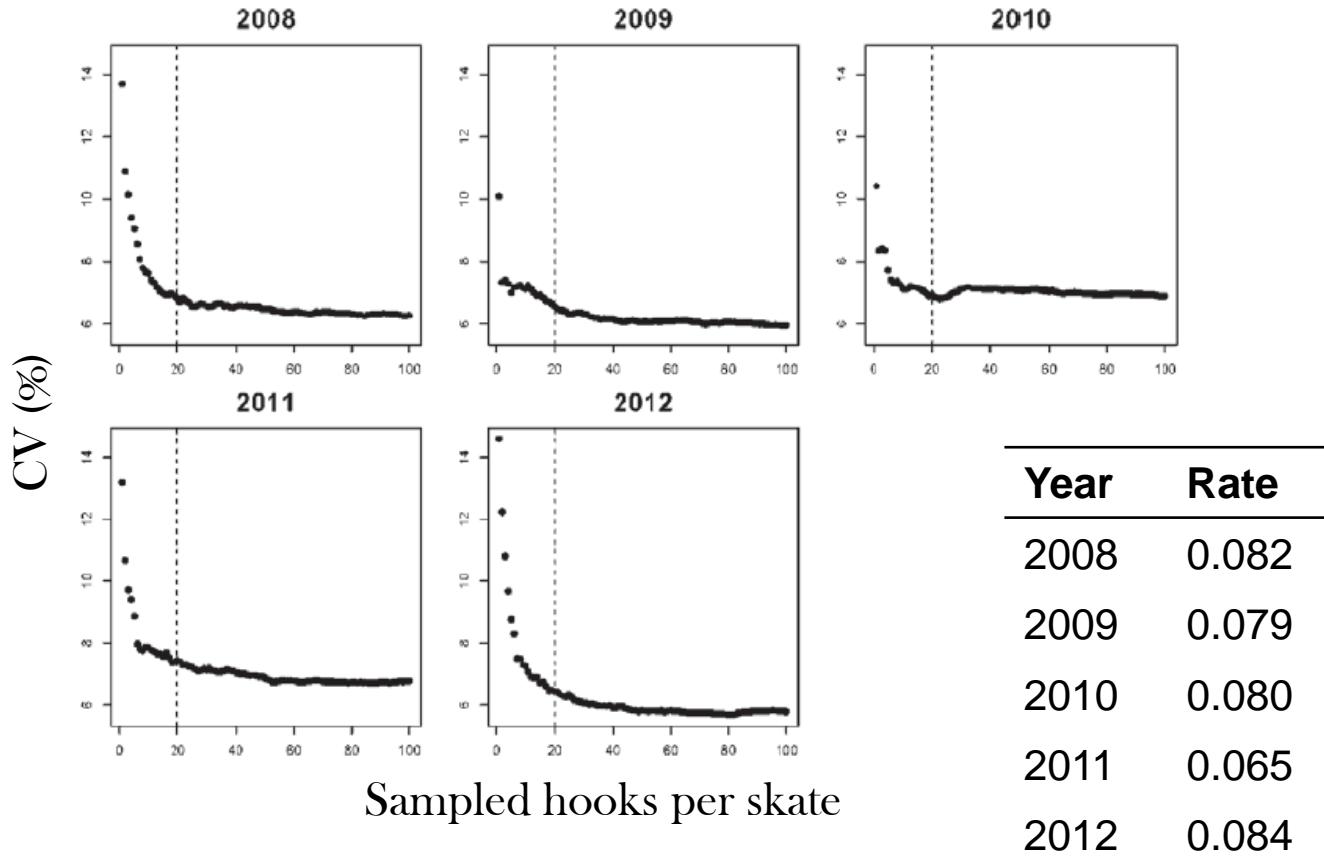
- Accuracy?



Webster and Leaman 2013

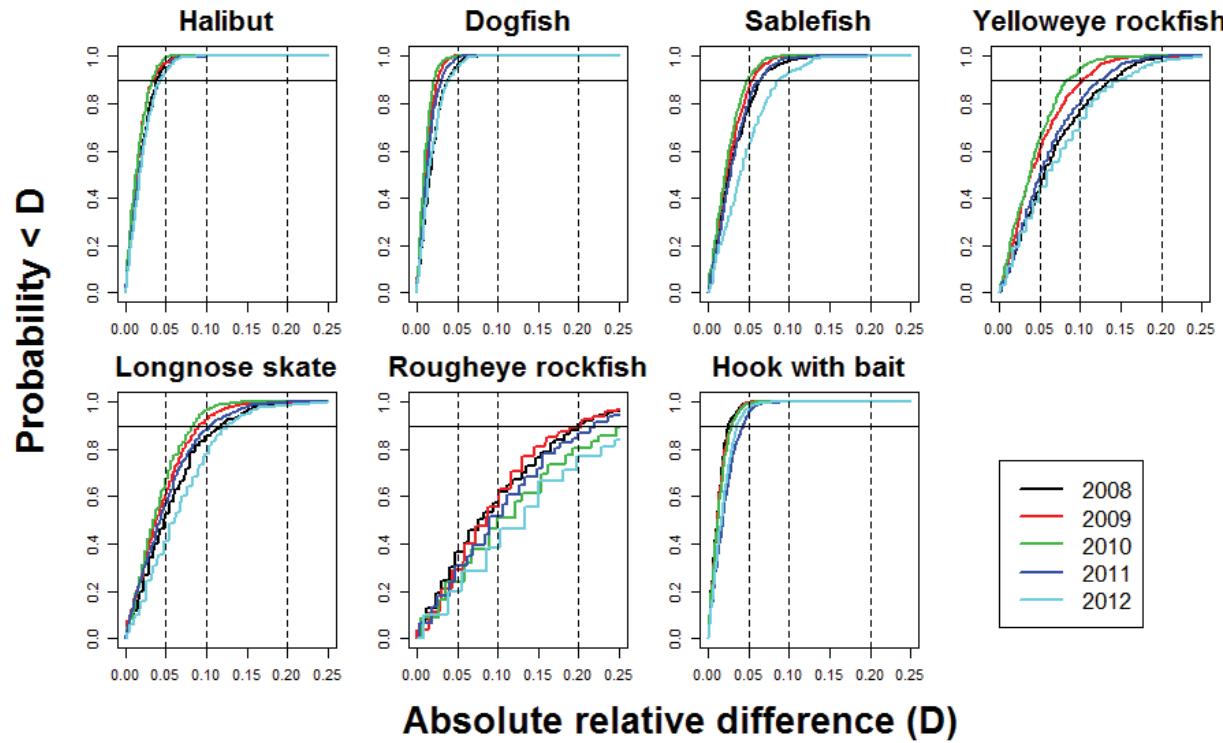
20 hook counts

- Precision?



Webster and Leaman 2013

20 hook counts

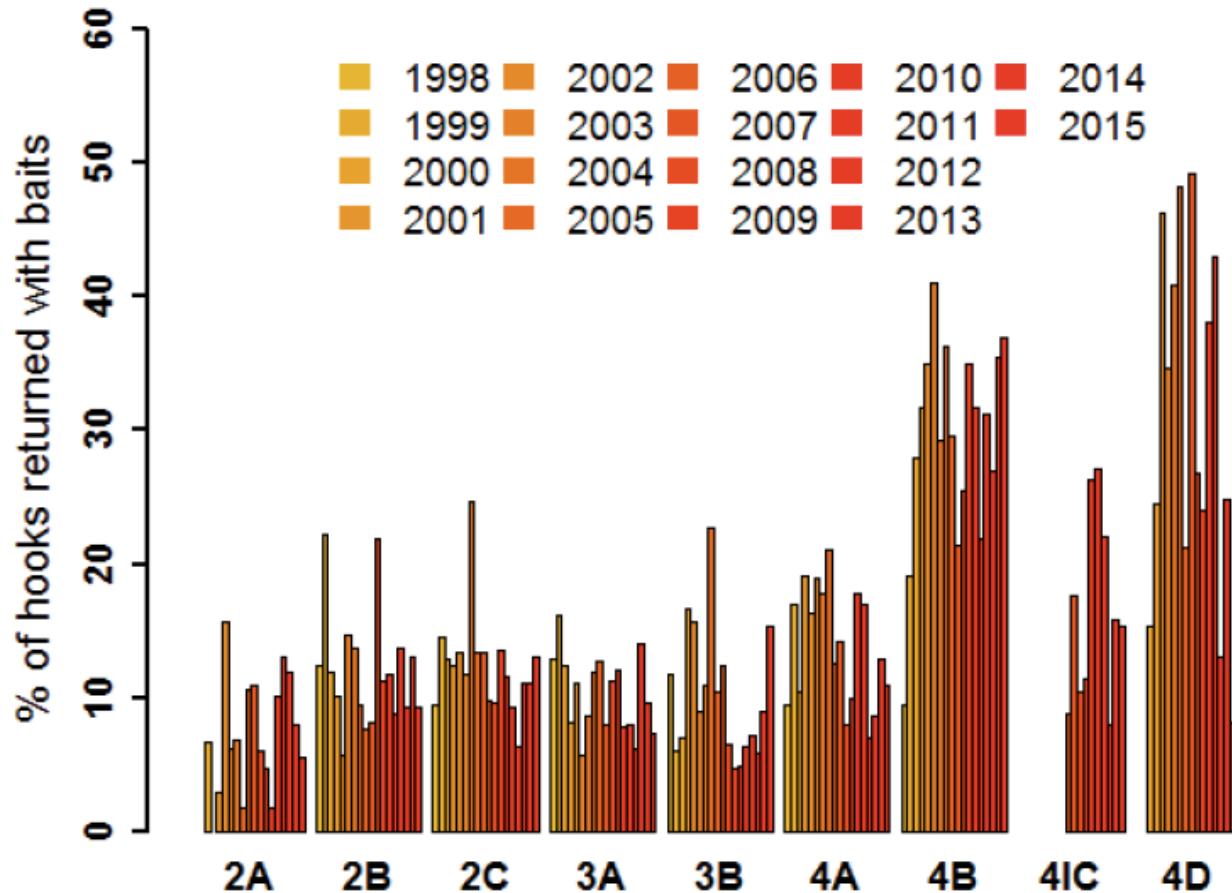


Year	Halibut	Spiny dogfish	Sablefish	Yelloweye rockfish	Longnose skate	Rougheye rockfish	Returned baits
2008	0.082	0.106	0.028	0.010	0.009	0.003	0.218
2009	0.079	0.162	0.028	0.012	0.010	0.003	0.113
2010	0.080	0.130	0.030	0.013	0.010	0.001	0.117
2011	0.065	0.128	0.026	0.009	0.009	0.002	0.088
2012	0.084	0.091	0.020	0.009	0.010	0.002	0.138



Webster and Leaman 2013

Hook competition



Webster and Stewart 2015

Hook competition

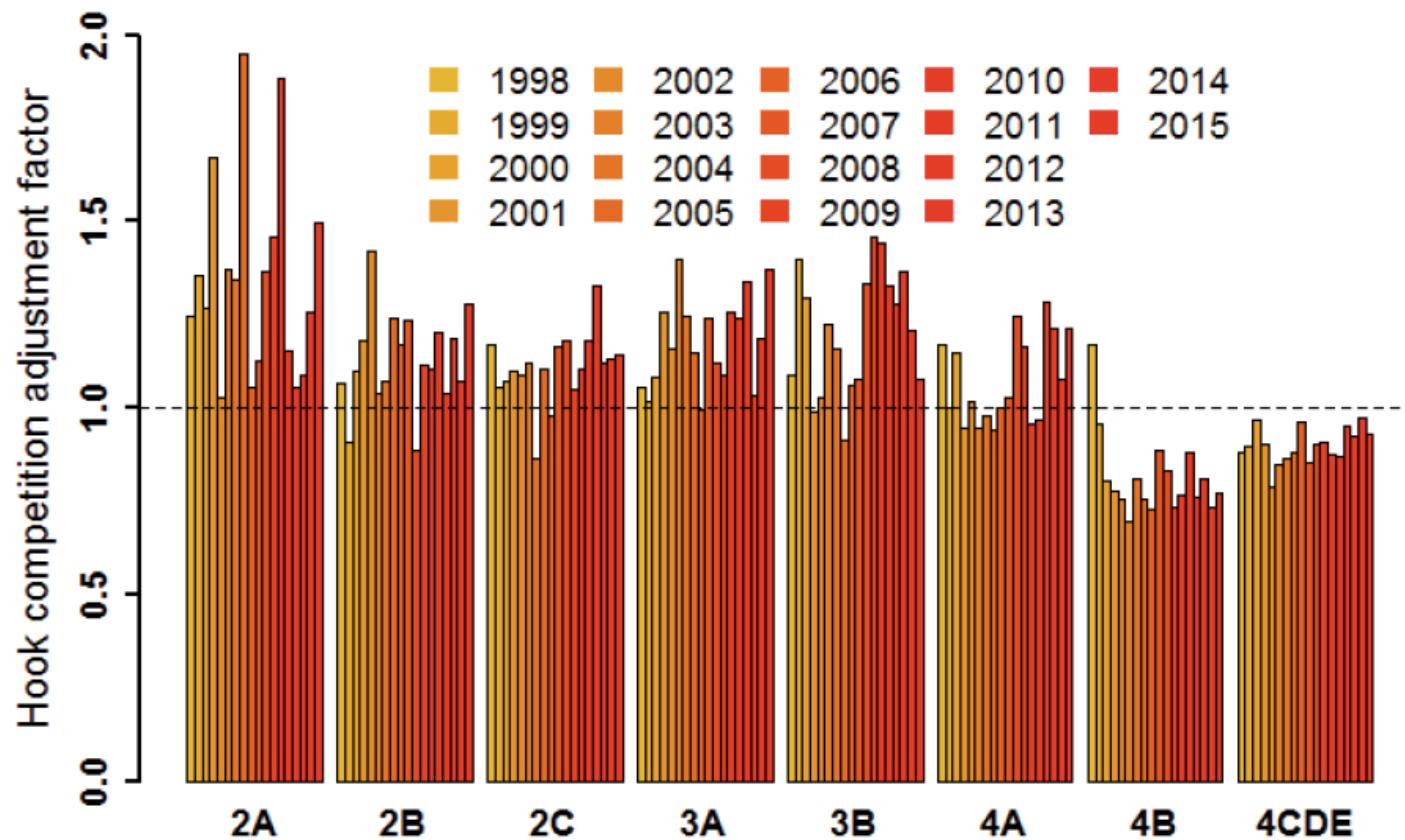
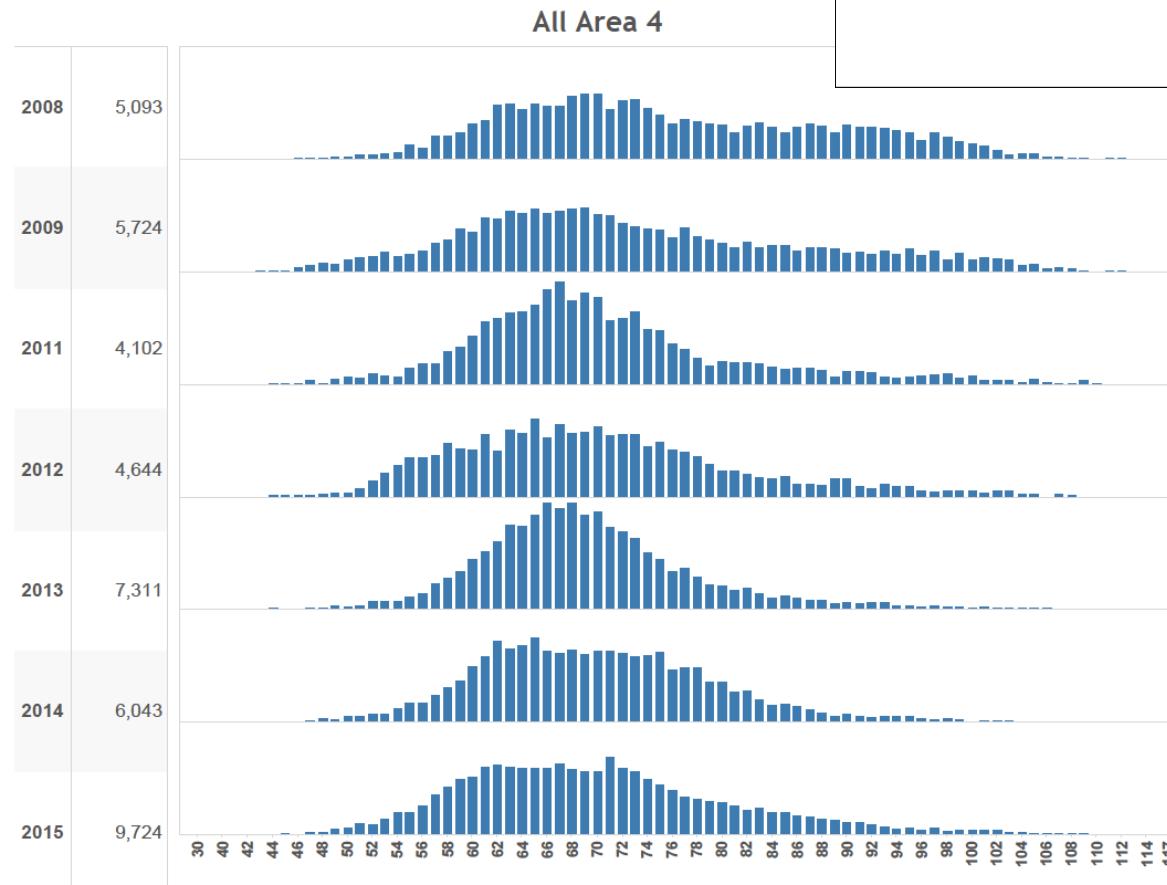
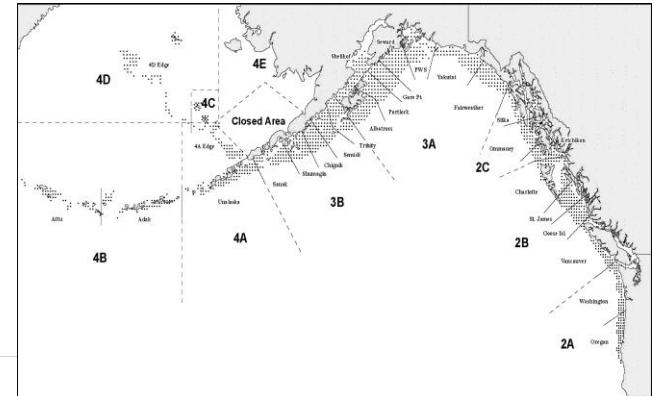


Figure 7. Hook-competition adjustment factors that have been applied to setline survey WPUE for apportionment.



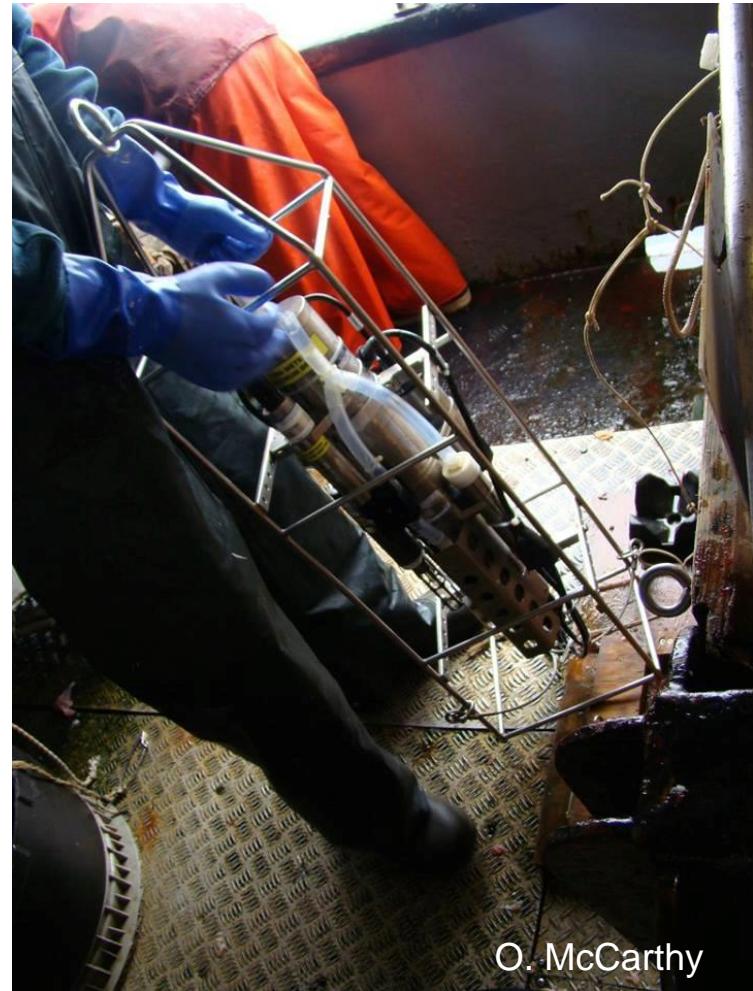
Special projects



Special projects

- Sea-Bird™ Seacat SBE19plus V2 water column profilers
- CTD, DO, pH, fluorescence

http://www.ecofoci.noaa.gov/projects/IPHC/efoci_IPHCDATA.shtml



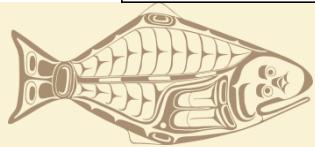
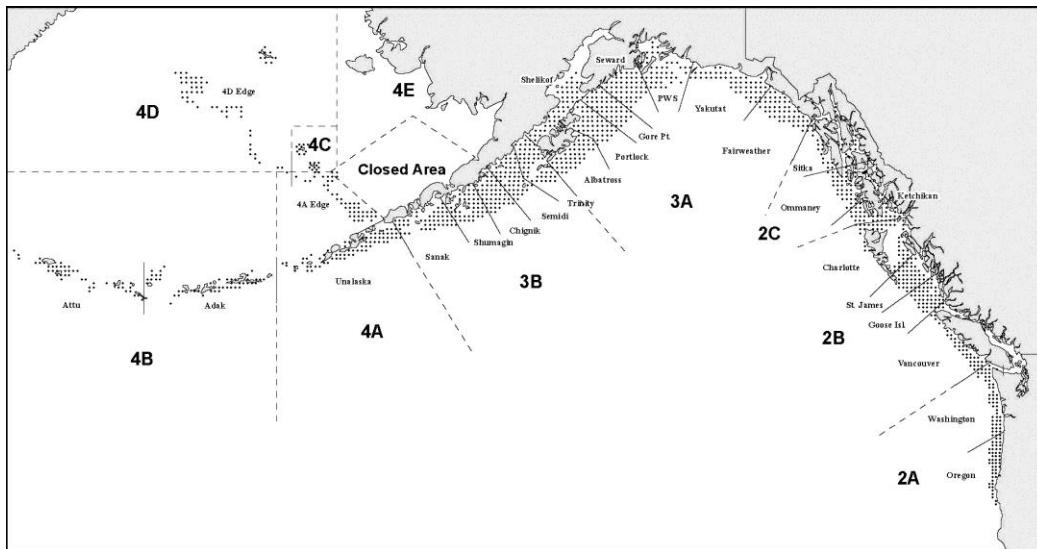
O. McCarthy



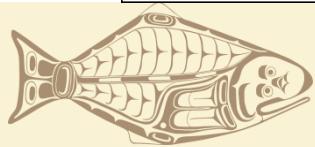
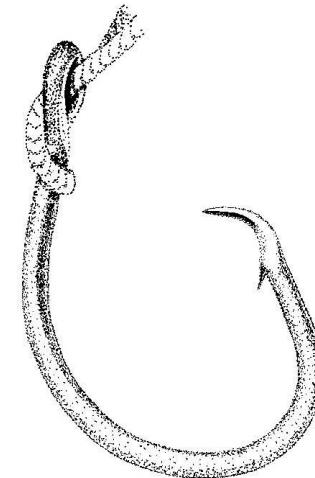
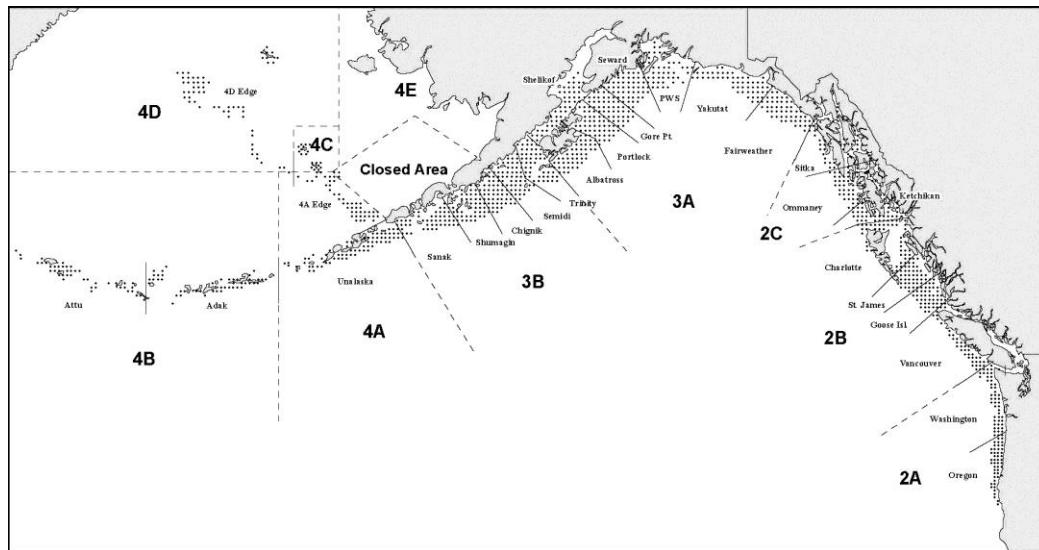
Summary



Summary



Summary



Acknowledgements

- Claude Dykstra
- Eric Soderlund
- Ian Stewart
- Ray Webster



Extra slides



Ineffective: Whale Predation



- If whales are present in the area during the haul back event, **and** the sum of gear (missing/straightened hooks) and fish damage (bite marks, lips) is greater than 10%, we assume that a number of fish have been pulled from the line unobserved, making the set ineffective.
- 14 stations since 2001



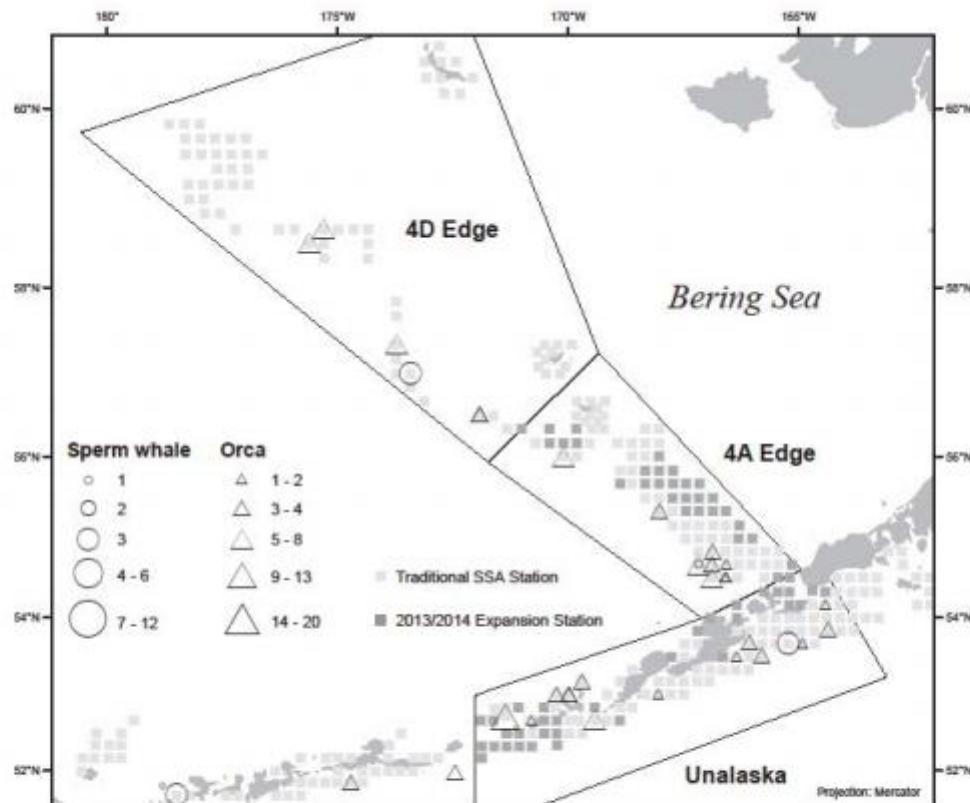
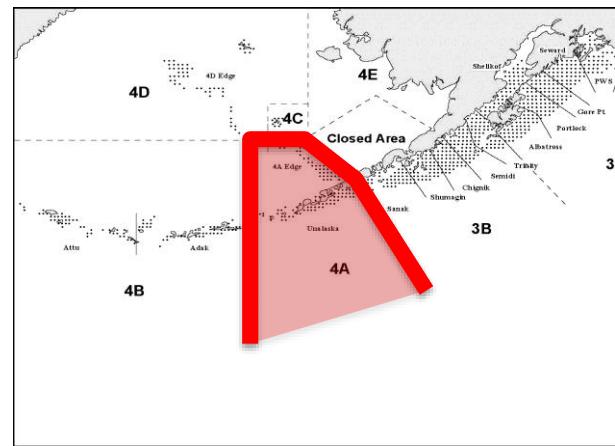
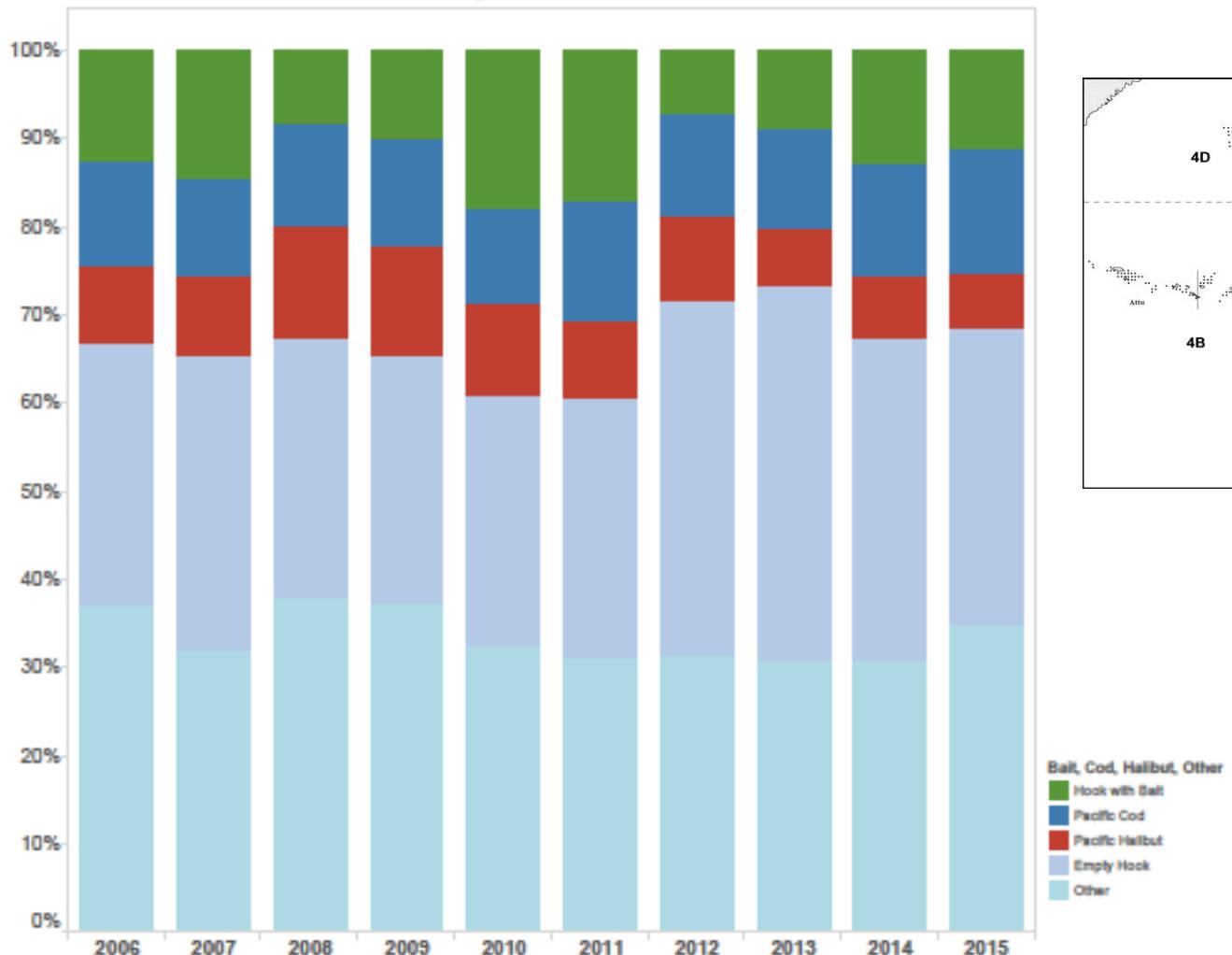


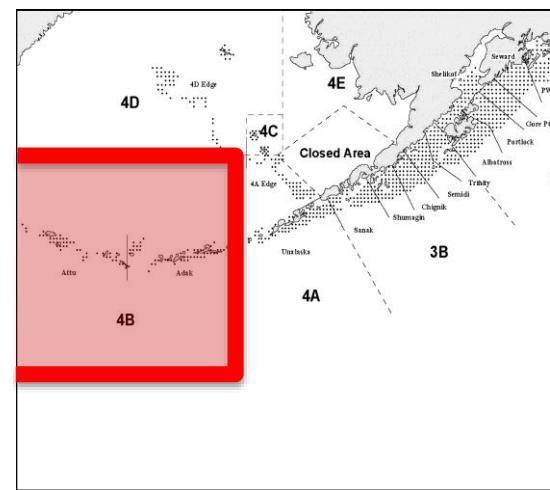
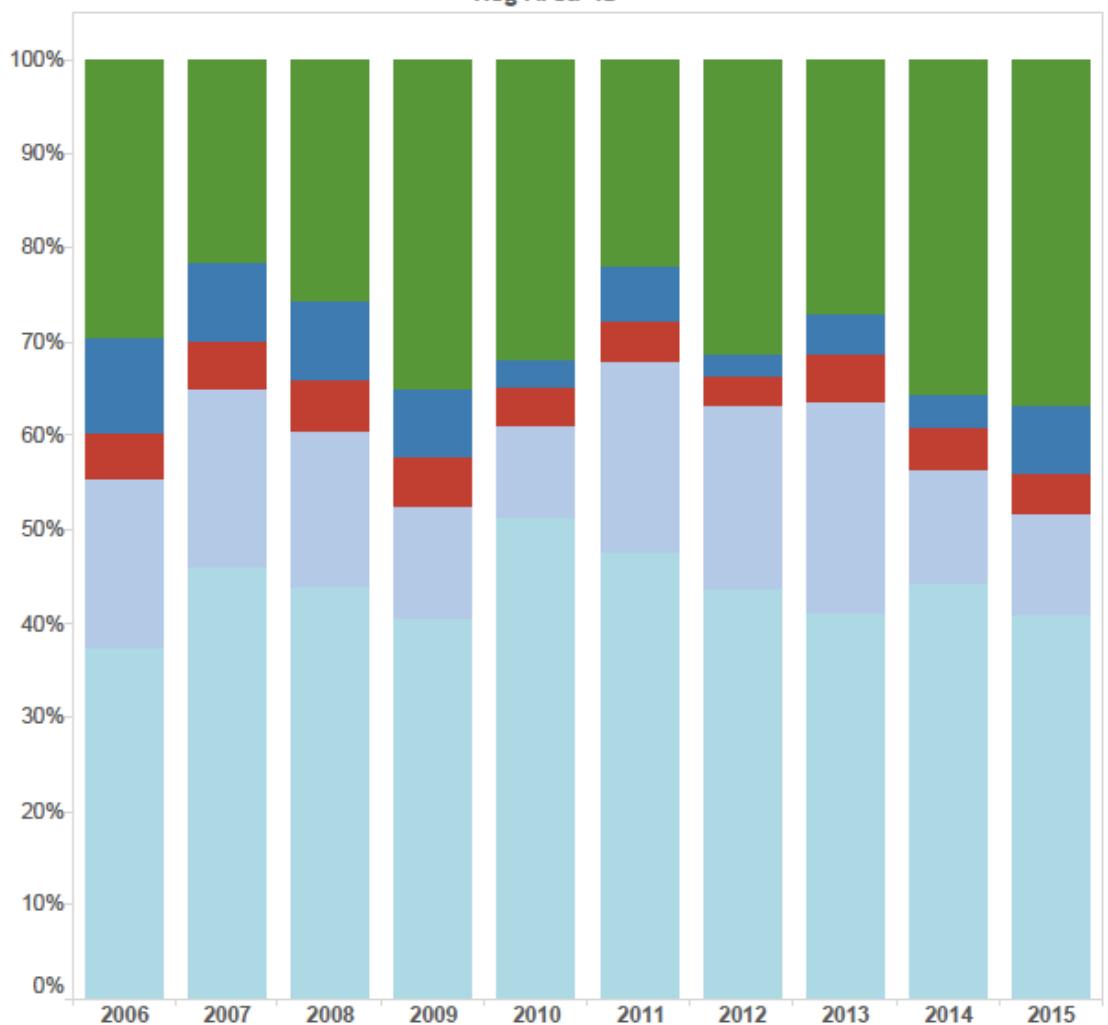
Figure 1c. Marine mammal depredation from 2009-2014 in charter regions with substantive killer whale presence.



Reg Area 4A



Reg Area 4B



Bait, Cod, Halibut, Other

Hook with Bait

Pacific Cod

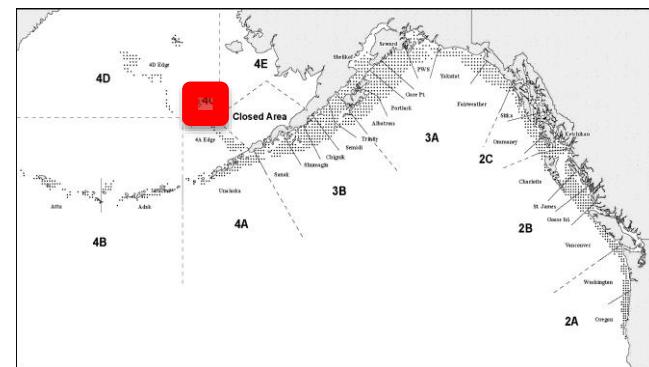
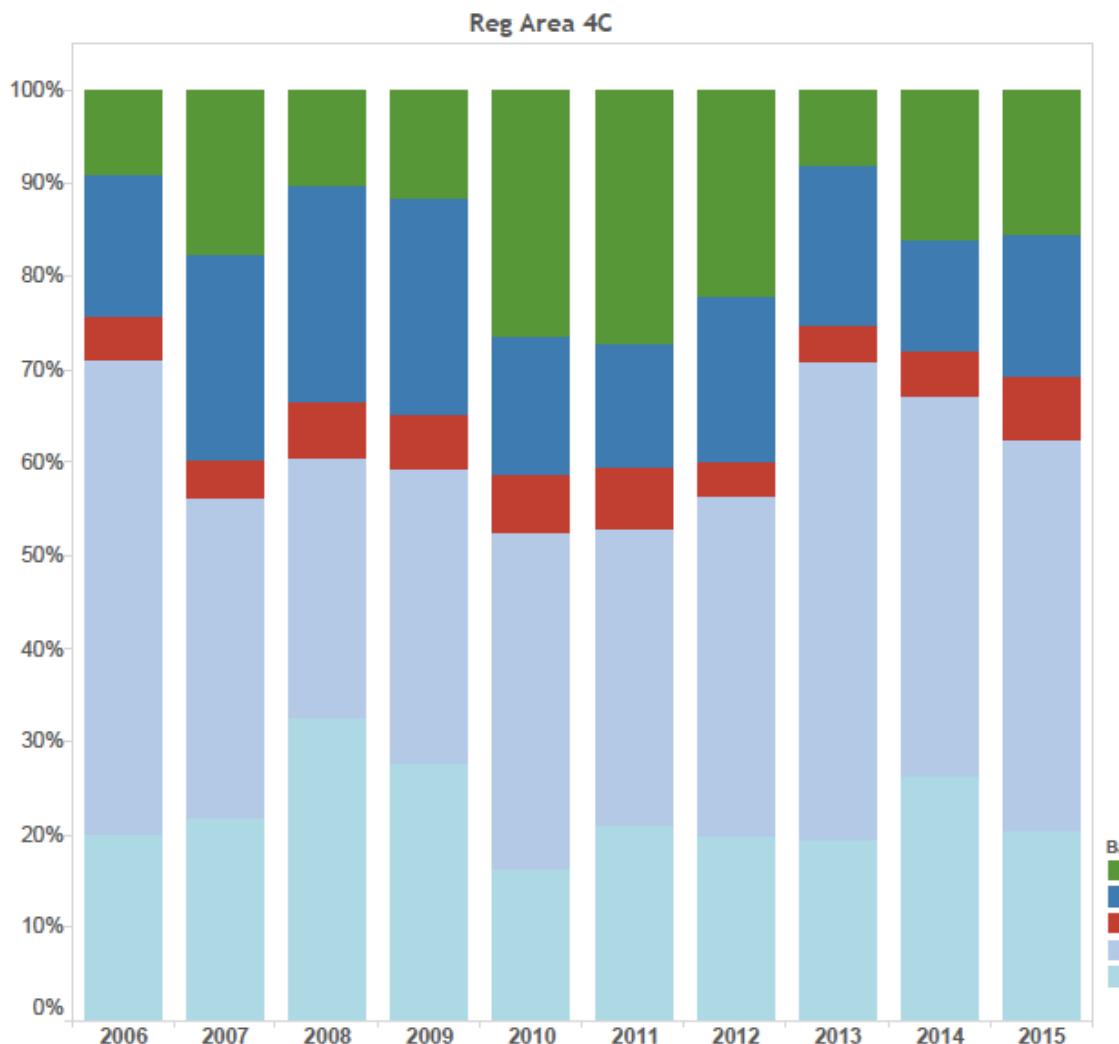
Pacific Halibut

Empty Hook

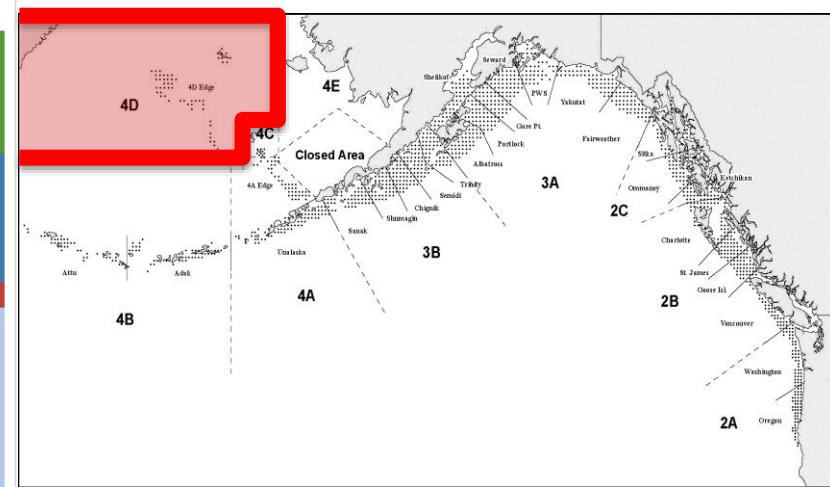
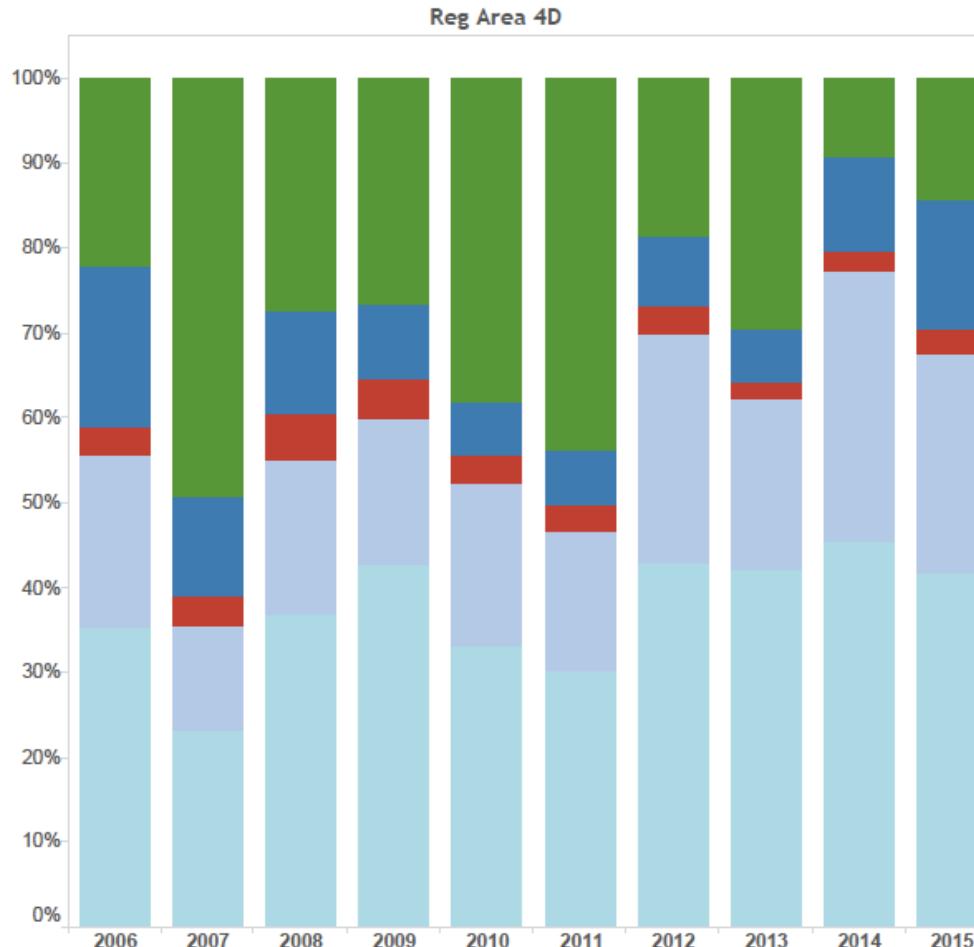
Other



4C



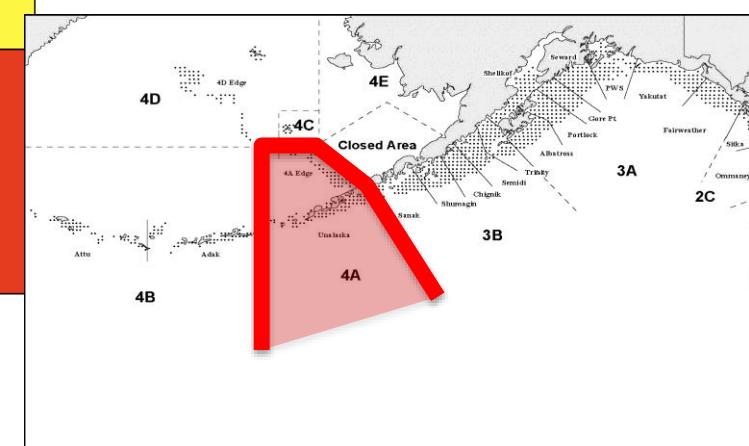
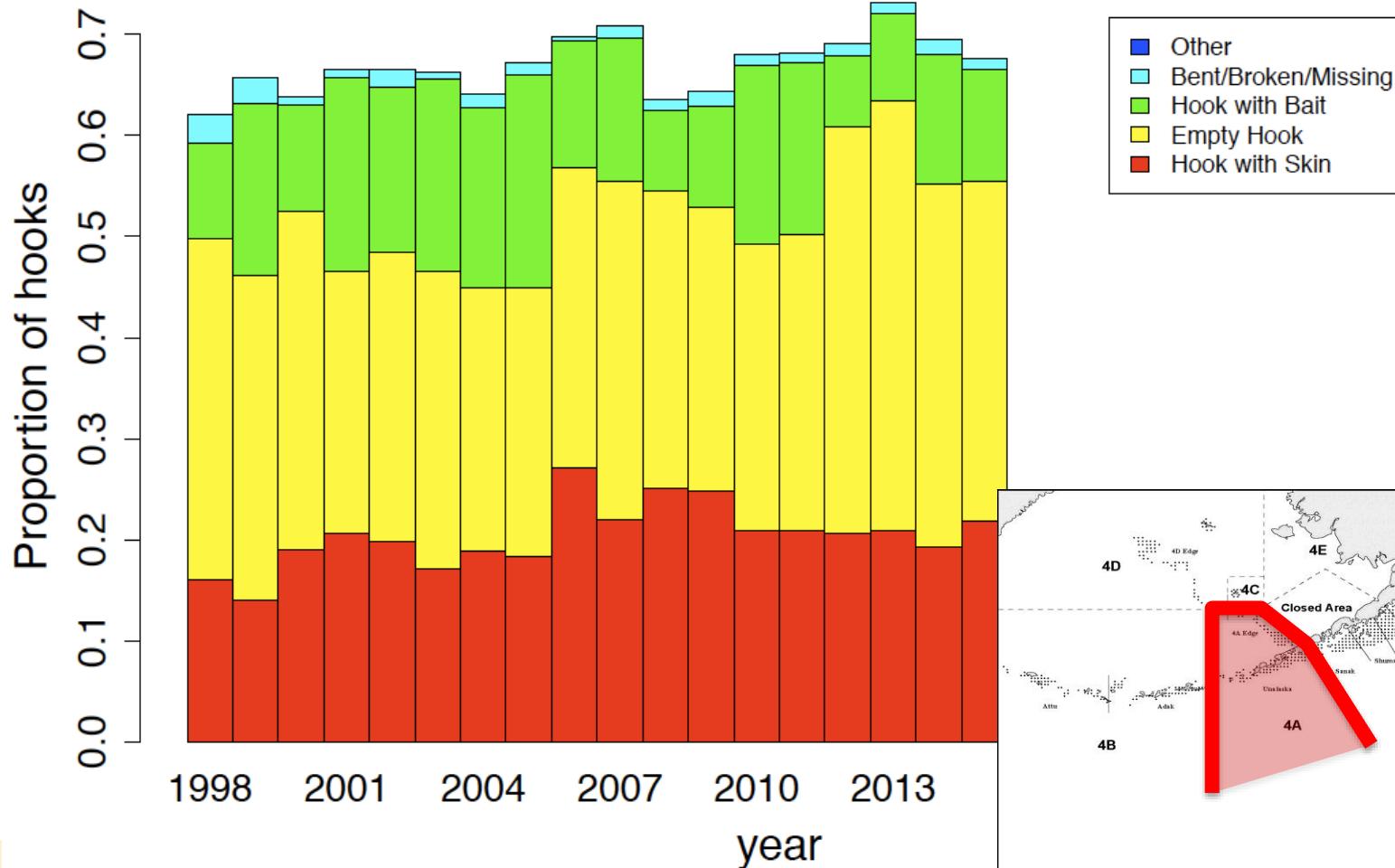
4D



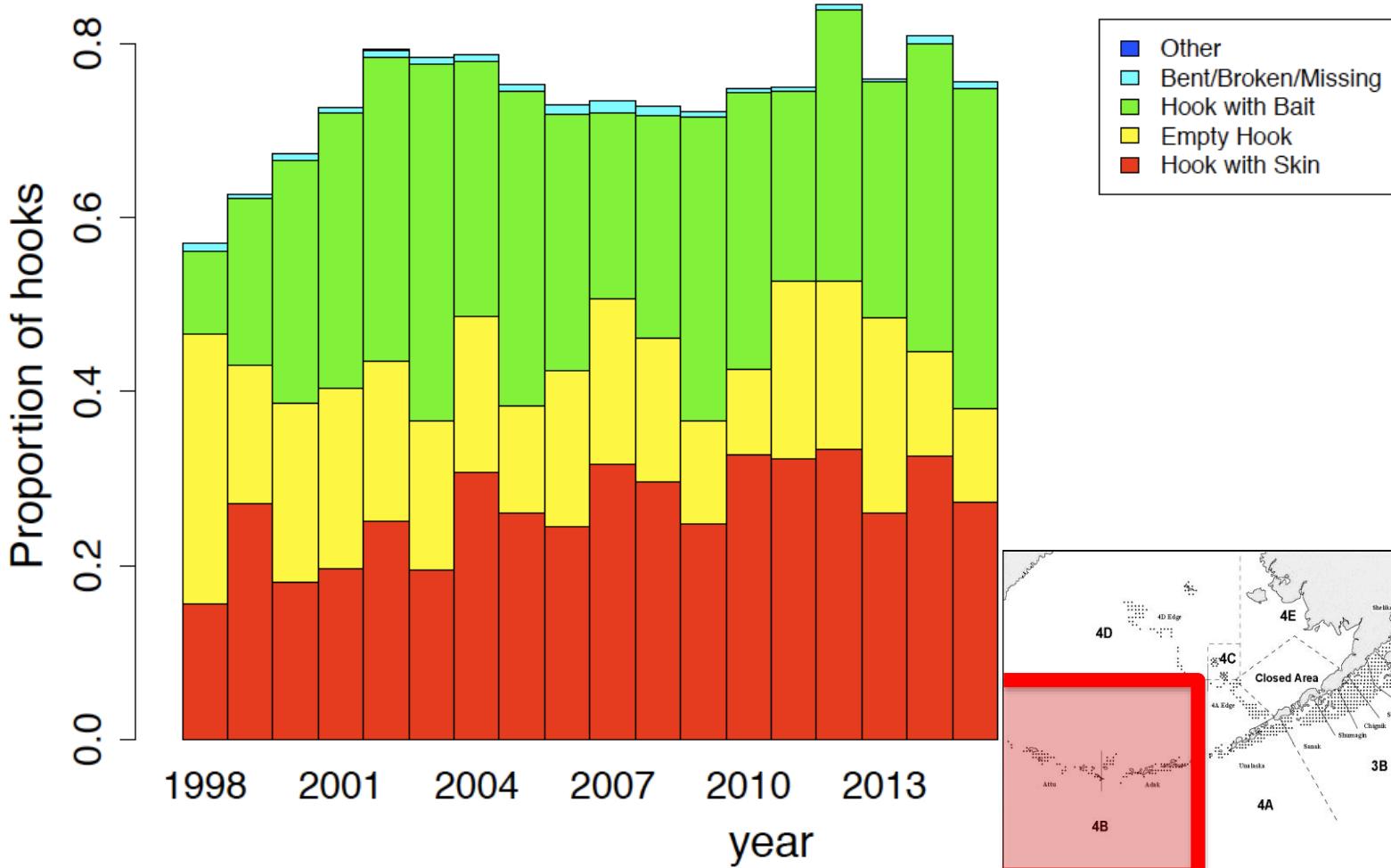
Bait, Cod, Halibut, Other
 Hook with Bait
 Pacific Cod
 Pacific Halibut
 Empty Hook
 Other



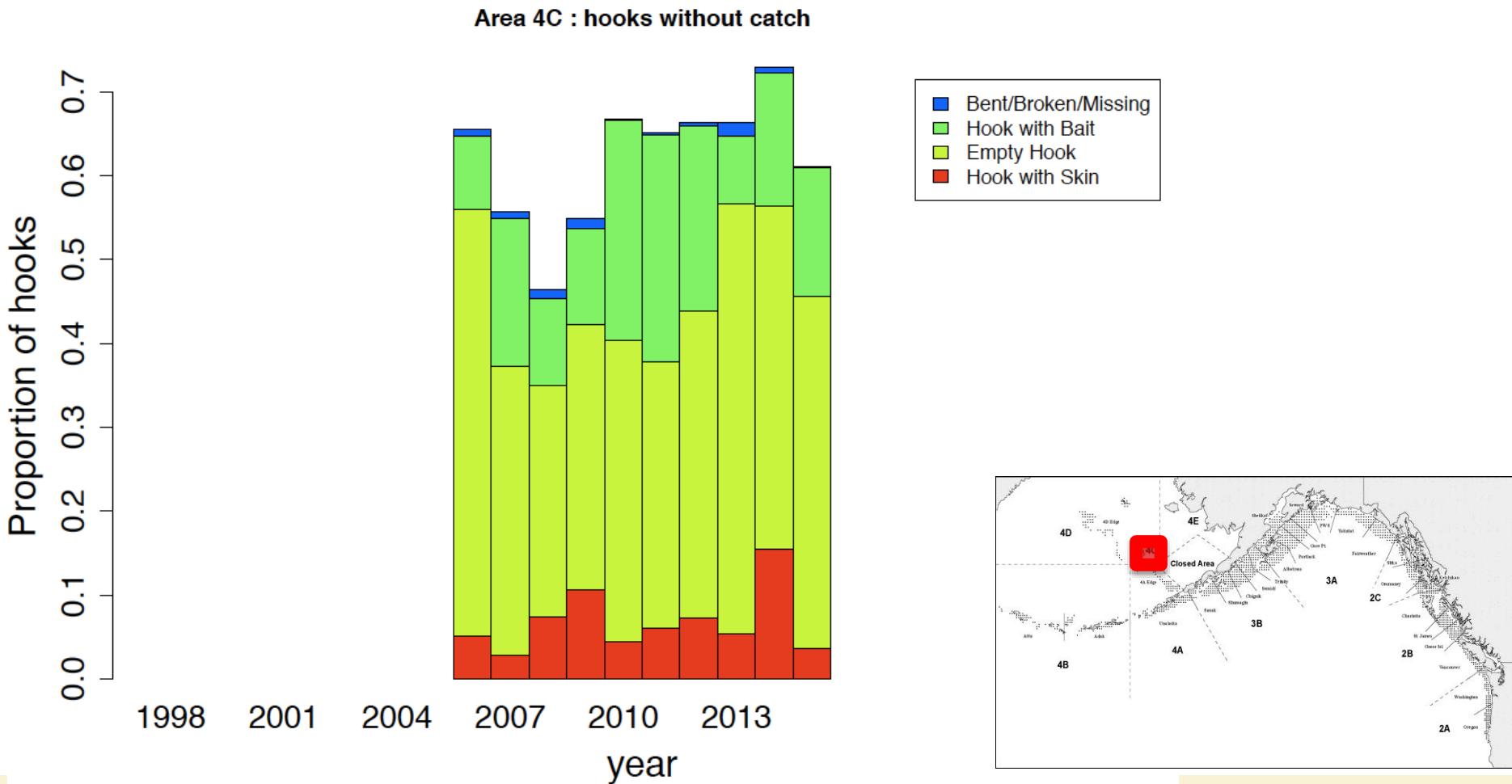
Area 4A : hooks without catch



Area 4B : hooks without catch



4C



4D

